

REPORT ON MACHINERY.

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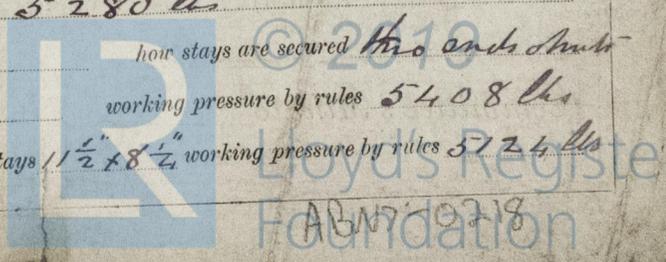
14
 Survey held at Aberdeen Date, first Survey 3rd May 80 Last Survey March 1881
 on the I.S.S. "Glen Gelder" Tons 709.41
T. Casson Built at Aberdeen When built March 1881
 made at Aberdeen By whom made Halk Russell & Co when made "1881"
 made at do By whom made "do" when made "1881"
 rated Horse Power 99 Owners Common & Fleming Port belonging to Aberdeen

ENGINES, &c.—

Position of Engines Compound Int Cym Surface Condensing
 Diameter of Cylinders 26" & 49" Length of Stroke 30" No. of Rev. per minute 75 Point of Cut off, High Pressure 3/4 Low Pressure 9/10
 Diameter of Screw shaft 9 1/4" Diameter of Tunnel shaft 8 3/4" Diameter of Crank shaft journals 9 1/4" Diameter of Crank pin 9 1/4" size of Crank web 10 3/4"
 Diameter of screw 10" & 9" Pitch of screw 15" & 5" No. of blades 4 state whether moveable Solid total surface 33 feet
 No. of Feed pumps two diameter of ditto 6" & 3" Stroke 6 1/2" & 30" Can one be overhauled while the other is at work yes
 No. of Bilge pumps two diameter of ditto 6" & 3" Stroke 6 1/2" & 30" Can one be overhauled while the other is at work yes
 Where do they pump from all the compartments
 No. of Donkey Engines two Size of Pumps 7" x 8" x 3 1/2" S.A. Where do they pump from sea, Hotwell, 6 boilers
 Condensers on Deck. Sea compartments Tanks through ship side
 Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes
 No. of bilge injections one and sizes 4 1/2" Are they connected to condenser, or to circulating pump Circulating pump suction
 How are the pumps worked by eccentrics and direct from piston crosshead
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the discharge pipes above or below the deep water line above
 Are they each fitted with a discharge valve always accessible on the plating of the vessel yes Are the blow off cocks fitted with a spigot and brass covering plate yes
 How are that pipes carried through the bunkers none How are they protected do
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock before launch 11th Feb 1881
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Cylinder platform

BOILERS, &c.—

Number of Boilers one Description Circular Tubular
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 11th February 1881
 Description of ~~superheating apparatus~~ steam chest Horizontal Domb
 Can each boiler be worked separately do Can the superheater be shut off and the boiler worked separately do
 No. of square feet of fire grate surface in each boiler 48.75 feet Description of safety valves Direct spring load 74 lbs
 No. to each boiler two area of each valve 15.9 sq" Are they fitted with easing gear yes
 No. of safety valves to superheater do area of each valve do are they fitted with easing gear do
 Least distance between boilers and bunkers or woodwork 6"
 Number of boilers 14" & 2" Length of boilers 10.0" description of riveting of shell long. seams Lap Double R. circum. seams Lap D.R.
 Thickness of shell plates 1" diameter of rivet holes 1 5/16" whether punched or drilled punched & drilled pitch of rivets 5"
 Lap of plating 7 1/2" & 6" per centage of strength of longitudinal joint 73 rivets 72.9 working pressure of shell by rules 81
 Size of manholes in shell 16" x 12" size of compensating rings 4" x 4" x 3"
 No. of Furnaces in each boiler three outside diameter 40" length, top 6" & 7" bottom 9" & 3"
 Thickness of plates Lap 1/2" bottom 3/16" description of joint Double Single R. if rings are fitted 1/2" ring of greatest length between rings 6" & 7"
 Working pressure of furnace by the rules 85 bottom whole 76 lbs
 Combustion chamber plating, thickness, sides 7/16" back 7/16" top 7/16"
 Pitch of stays to ditto sides 8" x 8 1/4" back 8" x 8" top round
 If stays are fitted with nuts or riveted heads nuts both outside & inside working pressure of plating by rules 79 lbs
 Diameter of stays at smallest part 1 1/4" working pressure of ditto by rules 5280 lbs
 Thickness of plates in steam space, thickness 5/8" covered by large washer pitch of stays to ditto 15" x 16" how stays are secured two ends & middle
 Working pressure by rules 82 lbs diameter of stays at smallest part 2 1/8" working pressure by rules 5408 lbs
 Front plates at bottom, thickness 5/8" Back plates, thickness 5/8" greatest pitch of stays 1 1/2" x 8 1/4" working pressure by rules 5724 lbs



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Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{3}{4}$ " thickness of tube plates, front $5/8$ " back $3/8$ "
 How stayed ~~tubes~~ ~~pitch~~ pitch of stays $14\frac{1}{2} \times 9\frac{1}{2}$ " width of water spaces $1\frac{1}{2}$ "
 Diameter of Superheater or Steam chest $3\frac{1}{2}$ " length $7\frac{1}{8}$ "
 Thickness of plates $\frac{1}{2}$ " description of longitudinal joint *Lap D.R.* diameter of rivet holes $3\frac{1}{4}$ " pitch of rivets 3 "
 Working pressure of shell by rules 121 lbs Diameter of flue $\frac{1}{2}$ " thickness of plates $\frac{1}{2}$ "
 If stiffened with rings $\frac{1}{2}$ " distance between rings $\frac{1}{2}$ " Working pressure by rules $\frac{1}{2}$ "
 End plates of ~~superheater~~ or steam chest; thickness $5/8$ & $3/4$ *How stayed* *By 3 = 2 1/2 bolt stays through one*
 Superheater or steam chest; how connected to boiler *by malleable neck riveted to shells*

DONKEY BOILER— Description *Round vertical*
 Made at *Aberdeen* By whom made *Hall Russell & Co* when made *March 1881*
 Where fixed *Stoke hold* working pressure 70 lbs Tested by hydraulic pressure to 160 lbs No. of Certificate 98
 Fire grate area 14.19 feet. Description of safety valves *direct Spring* No. of safety valves *one* area of each 7 in²
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *fitted with nonnets*
 Diameter of donkey boiler 5.0 " length $10.11\frac{1}{4}$ " description of riveting *Longi Lap D.R. Circ lap*
 thickness of shell plates $\frac{1}{2}$ " diameter of rivet holes $3\frac{1}{4}$ " whether punched or drilled *Punched*
 pitch of rivets 3 " lap of plating 5 " per centage of strength of joint 75 rivets 58
 thickness of crown plates $5/8$ " stayed by *5 diagonal stays*
 Diameter of furnace, top 3.6 " bottom 4.5 " length of furnace 6.6 "
 thickness of plates $\frac{1}{2}$ " description of joint *Lap S.R.*
 thickness of furnace crown plates $\frac{1}{2}$ " stayed by *dished*
 Working pressure of shell by rules 74 lbs working pressure of furnace by rules 78 lbs
 diameter of uptake $12\frac{1}{2}$ " thickness of plates $\frac{1}{2}$ " thickness of water tubes $7/16$ "

The foregoing is a correct description,
Hall Russell & Co Manufacturers

General Remarks (State quality of workmanship, opinions as to class, &c. *The boilers and machinery of this vessel have been built in accordance with the requirements of the Rules. Both material and workmanship being satisfactory. The machinery has been tested under steam, and the safety valves set to a working pressure of 80 lbs per square inch, and all found in good working order, and in my opinion are eligible to be entered into the Register Book with the distinctive Lloyd's M.C. in*

This is submitted that the vessel is eligible to have the notification & entry to the Register Book
M 20/3/81

The amount of Entry Fee .. £ 2: - - received by me, and forwarded to the Survey Office
 Special .. £ 14: 17: -
 Certificate (if required) .. £ - : 2: 6 *20th March 1881*
 To be sent as per margin.

John Sturrock
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping
 Dundee & District

Committee's Minute Tuesday March, 29th 1881.
[Signature]